| **ODE 8th grade benchmarks that should continue to be addressed 2012-2013** | **Recommendation of which Common Core 8th grade standards to connect with**  *(i.e., address the ODE benchmark as an extension of the Common Core standard indicated below)* | **CMP2 Notes** |
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| **Number, Number Sense and Operations**  A. Use scientific notation to express large numbers and numbers less than one. | **Work with radicals and integer exponents.**  8.EE.3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 108 and the population of the world as 7 × 109, and determine that the world population is more than 20 times larger.  8.EE.4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology. | *Growing3* (Introduction & Inv. 5) – focus on linear  *Growing3* (Investigation 1 ACE #39d)  Supplement Scientific Notation |
| **Measurement**  B. Use formulas to find surface area and volume for specified three-dimensional objects accurate to a specified level of precision.  C. Apply indirect measurement techniques, tools and formulas, as appropriate, to find perimeter, circumference and area of circles, triangles, quadrilaterals and composite shapes, and to find volume of prisms, cylinders, and pyramids.  D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. | **Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**  8.G.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.  **Understand and apply the Pythagorean Theorem.**  8.G.6. Explain a proof of the Pythagorean Theorem and its converse.  8.G.7. Apply the Pythagorean Theorem to determine unknown side length in right triangles in real-world and mathematical problems in two and three dimensions.  8.G.8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. | *Looking for Pythagoras*  (Investigation 1 piece which explains the theorem)  Supplemental materials are needed to strengthen this book (see Rachael)  Lauren has a Jelly Bean activity  CCSS Investigation 4: Geometry Topics |
| **Geometry and Spatial Sense**  B. Describe and apply the properties of similar and congruent figures; and justify conjectures involving similarity and congruence.  C. Recognize and apply angle relationships in situations involving intersecting lines, perpendicular lines and parallel lines.  D. Use coordinate geometry to represent and examine the properties of geometric figures.  F. Represent and mod transformations in a coordinate plane and describe the results.  **Nets on OAA (1 day)**  E. Draw and construct representations of two- and three-dimensional geometric objects using a variety of tools, such as straightedge, compass and technology. | **Understand congruence and similarity using physical models, transparencies, or geometry software**.  8.G.1. Verify experimentally the properties of rotations, reflections, and translations:  a. Lines are taken to lines, and line segments to line segments of the same length.  b. Angles are taken to angles of the same measure.  c. Parallel lines are taken to parallel lines.  8.G.2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.  8.G.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.  8.G.4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.  8.G.5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.* | CCSS Investigation 3: Transformations  CCSS Investigation 4: Geometry Topics  \*\*\*Additional Supplements will be needed – Rachael has a unit started |
| **Patterns, Functions, and Algebra**  C. Translate information from one representation (words, table, graph or equation) to another representation of a relation or function.  D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations.  E. Analyze and compare functions and their graphs using attributes, such as rates of change, intercepts and zeros.  F. Solve and graph linear equations and inequalities.  H. Solve systems of linear equations involving two variables graphically and symbolically.  J. Describe and interpret rates of change from graphical and numerical data. | **Understand the connections between proportional relationships, lines, and linear equations.**  8.EE.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.  8.EE.6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.  **Analyze and solve linear equations and pairs of simultaneous linear equations.**  8.EE.7. Solve linear equations in one variable.  a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).  b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.  8.EE.8. Analyze and solve pairs of simultaneous linear equations.  a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.  b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.  c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair. | *Moving Straight Ahead* (7th grade book)  *Thinking with Mathematical Models* (Investigations 1 & 2 ONLY)  *Say It With Symbols*  Supplement Systems of Linear Equations   * Elimination or Substitution |
| **Data Analysis and Probability**  A. Create, interpret and use graphical displays and statistical measures to describe data; e.g., box-and-whisker plots, histograms, scatterplots, measures of center and variability.  B. Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose.  D. Find, use and interpret measures of center and spread, such as mean and quartiles, and use those measures to compare and draw conclusions about sets of data.  J. Compute probabilities of compound events, independent events, and simple dependent events. | **Investigate patterns of association in bivariate data.**  1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.  2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.  3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.  4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores? | *Samples and Populations* (Investigations 4.1 or 4.2 – could be used, but only 1 lesson)  CCSS Investigation 5: Bivariate Data |